



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,164	07/25/2001	Gundu M. Sabde	500163.05	9145
27076	7590	06/23/2004	EXAMINER	
DORSEY & WHITNEY LLP INTELLECTUAL PROPERTY DEPARTMENT SUITE 3400 1420 FIFTH AVENUE SEATTLE, WA 98101			MACARTHUR, SYLVIA	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/916,164	<b>Applicant(s)</b> SABDE ET AL.	
	<b>Examiner</b> Sylvia R MacArthur	<b>Art Unit</b> 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☐ Claim(s) 60-105 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 60-105 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>57702 and 11404 5124/2004 and</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Priority*

1. If applicant desires priority under 35 U.S.C. 120, 121 or 365(c) based upon a previously filed application, specific reference to the earlier filed application must be made in the instant application. For benefit claims under 35 U.S.C. 120, 121 or 365(c), the reference must include the relationship (i.e., continuation, divisional, or continuation-in-part) of the applications. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph unless it appears in an application data sheet. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. \_\_\_\_" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

### *Claim Rejections - 35 USC § 102*

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 60 is rejected under 35 U.S.C. 102(e) as being anticipation by Molnar (US 6,634,927).

Molnar teaches a support table 40, a polishing pad on the support table, the polishing pad 26 having a body, a planarizing surface on the body, and a plurality of abrasive particles fixed attached to the body at the planarizing surface; a carrier assembly having a carried head 16 configured to hold a substrate assembly and a drive mechanism (motor, see col. 9 lines 59) attached to the carrier head to move the carrier relative to the polishing pad; and a non-abrasive

lubricating planarizing solution without abrasive particles on the polishing pad, see col. 8 lines 30-36. Molnar further teaches a non-abrasive lubricating solution wherein various solutions are discussed in col. 27 and 28. Regarding the viscosity of the lubricating solution. The claimed invention is held to an apparatus. The viscosity of the solution does not provide structural limitations as this is a process limitation and is not given patentable weight. Also it should be noted that viscosity is a physical property dependent upon temperature and the temperature should be noted when making claim to the viscosity.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Molnar in view of Wijekoon et al (6,572,453).

The teachings of Molnar were discussed above.

Regarding claim 61: Molnar fails to a plurality of fluid supplies and a mixing site.

Wijekoon et al teaches a multi-fluid polishing process. The method teaches a polishing fluid supply line 25a and a polishing fluid source 26a and a fluid arm 25, which acts as a mixing site.

The motivation to provide the apparatus of Molnar with a multi-fluid polishing process is that it allows a plurality of polishing fluids to be added to the process in-situ and mixed prior to

contacting the wafer in the polishing process. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to provide the apparatus of Molnar with a multi-fluid polishing process.

5. Claims 62- 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Molnar. Regarding claims 62, 64, 84, and 86: Molnar fails to teach that the non-abrasive lubricant comprises glycerol.

Molnar does teach that the lubricant is made of a sulfurized fatty acid soaps. Glycerol is a suitable type of soap and is well known for its chemical and physical properties.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use glycerol as the non-abrasive lubricating planarizing solution as the lubricant.

Regarding claims 63, 65, 67, 69, 71, 73, 75, 77, 79, 81, and 83: Molnar fails to teach the specific viscosity of the lubricating solution. However, the resulting viscosity of a solution is an optimizable parameter well known in the field of solution chemistry. The motivation to provide a mixture with a viscosity of 10-20cP or 10-100cP is that this viscosity will ensure that the polishing surface is adequately buffered from the wafer to prevent overpolishing or damaging the wafer and thus causing an undesirable result.

Regarding the non-abrasive comprising ammonia,

6. Claims 84-105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Molnar in view of Wijekoon et al.

The teachings of Molnar were discussed above. Molnar fails to expressly teach the use of ammonia, though ammonia is a known cleaning agent with chemical and physical properties that make it desirable to utilize in a polishing environment.

Molnar fails to teach that the lubricating solution comprises the components as claimed. However, Molnar does teach that the lubricant is made of a sulfurized fatty acid soaps. Glycerol (regarding claims 84 and 86) is a suitable type of soap and is well known for its chemical and physical properties.

Molnar also teaches that the lubricating solution comprises glycols made of propylene glycol or polymer and copolymers and mixtures thereof see the sentence joining col. 27 and 28. It is even noted that polypropylene (regarding claims 88, 90, and 92) is a preferred finishing aid in col. 27 lines 48-50.

Regarding claim 96: Molnar does specifically claim polyvinyl alcohol as a lubricating solution, but does cite the use of alcohols in col. 28 lines 17-25.

Regarding mixing the solutions with ammonia. Ammonia is a known cleaning agent with chemical and physical properties that make it desirable to utilize in a polishing environment.

Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to use glycerol and polypropylene glycol as the non-abrasive lubricating planarizing solution as the lubricant in aqueous solution of ammonia as claimed.

5. The use of the trademark CARBOPOL (claims 76, 78, 98, and 100) and POLYOX (claims 80, 82, 102, and 104) has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.


Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

*Conclusion*

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R MacArthur whose telephone number is 571-272-1438. The examiner can normally be reached on M-F during the core hours of 8 a.m. and 2 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sylvia R MacArthur  
Patent Examiner  
Art Unit 1763

June 6, 2004